

What is claimed is:

1. A method for producing an object comprising the steps of:

providing a fluid medium having a top surface capable of solidification when subjected to a prescribed stimulation;

mixing a solid reinforcing material with the fluid medium;

providing an acoustic field at said fluid medium surface;

manipulating said solid reinforcing material using said acoustic field;

stimulating a region of said fluid medium surface, said stimulating resulting in solidification of said fluid medium into a lamina having said solid reinforcing material therein; and

moving said lamina downward, such that said fluid medium exists as a liquid above the top surface of the most recently formed lamina.

2. The method of claim 1 wherein the solid reinforcing material is selected from a group consisting of a fibrous material, a nonfibrous material and a mixture of a fibrous material and a nonfibrous material.

3. The method of claim 1 further comprising the step of adding additional solid reinforcing material to said fluid medium.

4. The method of claim 1 further comprising the step of stirring said fluid medium.

5. The method of claim 1 further comprising the step of moving said stimulated region.

6. The method of claim 5 further comprising the step of coordinating the step of moving said stimulated region, the step of moving said lamina downward, and the step of manipulating said solid reinforcing material.

7. The method of claim 1 wherein said acoustic field is provided as a standing wave field.

8. The method of claim 1 wherein said acoustic field is provided as a crawling wave field.

9. A system for producing an object comprising:

a fluid medium having a surface, said fluid medium capable of transforming its physical state in response to a stimulation;

a solid reinforcing material provided in said fluid medium;

a support means immersed within said fluid medium, and progressively moveable away from said fluid medium surface;

a translational means joined to said support means capable of moving said support means with respect to said fluid medium surface;

a stimulation means capable of providing the stimulation altering the physical state of said fluid medium at said fluid medium surface; and

at least two acoustic transducers positioned in said fluid medium and capable of providing an acoustic field at said fluid medium surface for manipulating said reinforcing material.

10. The system of claim 9 further comprising an acoustic controller joined to said at least two acoustic transducers for controlling the provided acoustic field.

11. The system of claim 10 further comprising an object controller joined to said translational means and said stimulation means, said object controller being capable of positioning said stimulation means and said translational means for controlling positioning of the stimulation means with respect to the support means.

12. The system of claim 11 wherein said object controller is joined to said acoustic controller for coordinating the position of the provided acoustic field with the portion of the fluid medium being subjected to said stimulation means.

13. The system of claim 12 further comprising a vat having a plurality of walls containing said fluid medium therein, said acoustic transducers being positioned on at least two of said walls.

14. The system of claim 9 wherein the solid reinforcing material is selected from a group consisting of a fibrous material, a nonfibrous material and a mixture of a fibrous material and a nonfibrous material.